

Reusable Product Packaging

Inventor:

Walter Parsadayan

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FIELD OF THE INVENTION

The present invention relates to shipping containers more particularly it relates to shipping containers designed for multiple reuses with heavy or bulky objects.

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BACKGROUND OF THE INVENTION

Shipping containers used for bulky or heavy objects in common use tend to be made of wooden pallets with some type of covering made of wood or cardboard. Use of this packaging requires a significant expenditure of time and effort to prepare it for use. The object to be shipped has to be secured to the pallet by some means, usually metal or fabric straps and the pallet encased with a cover. Attaching the cover usually entails the taping of the cover to the pallet if it is cardboard or nailing it if it is wood. Additionally, if the bulky or heavy object has to be reshipped the whole process of repackaging is repeated. This can often happen when a manufacturer or distributor sends to a customer a replacement part, such as a heavy electrical motor and the customer has to return the motor for exchange, repair or refurbishing. If the motor has been returned for repair or refurbishing once the customer receives the repaired or refurbished motor they have to return the one loaned to them for use while theirs is being repaired. Thus, this might require multiple reuses of the same packaging. Often the packaging may be damaged or destroyed due to its multiple reuse by the act of opening and repackaging.

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Reusable shipping packaging is well known in the shipping industry. Often such reusable packaging is made of cardboard enclosures used in conjunction with foam forms, large Styrofoam or cardboard braces. However, this packaging is generally only useable with objects of light to moderate weight. As soon as the object to be shipped exceeds several pounds cardboard is not strong enough in and of itself to provide the necessary strong packaging. Also, cardboard has a limited useful life depending on how it is used and how frequently it is used.

There are a number of containers disclosed that attempt to provide an adequate reusable container for bulky or heavy objects. However, most tend to rely on collapsible wooden containers. While these collapsible containers may solve some of the durability or strength problems they still tend to be cumbersome and time consuming to erect and prepare for use and pack as well as unpack and disassemble.

Thus, what is needed is reusable product packaging that can easily and quickly be assembled and packed. Product packaging that can also be easily and quickly unpacked and repacked as necessary. The product packaging also must be resistant to possible damage during the packing and unpacking steps when used multiple times.

SUMMARY

Thus, it is an objective of the present invention to provide a durable and economical reusable-shipping container that is easy and efficient to use. It is a further objective to provide a reusable-shipping container that can be used with bulky or heavy objects.

The present invention accomplishes these and other objectives by providing: a reusable shipping container for the transportation of objects that includes: a base carrier made of a strong, shock resistant, durable lightweight material capable of carrying substantial loads; the carrier having at least one securing position on an outside peripheral side of the base carrier and at least one object securing position on a top of the base carrier to securely but detachably connect at least one object to the top of the base; a light weight collapsible cover with at least one connection point designed to mate to the at least one securing position on the base carrier; and at least one securing mechanism to detachably but securely connect the at least one connection point on the cover to the at least one securing position on the base carrier.

In an additional aspect of the present invention the securing mechanism can be a removable clipping mechanism or a twist lock mechanism. In yet another aspect of the present invention the base can be made of a hard durable plastic like material such as polyurethane, polyelethylene, polypropylene or similar materials.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood by an examination of the following description, together with the accompanying drawings, in which:

Fig. 1 is a perspective view of a base of a preferred embodiment of the present invention;

Fig. 2 is a perspective view of the product packaging of the present invention;

Fig. 3 is a perspective view of a cover of the present invention;

Fig. 4 is a cross-sectional view showing a securing clip inserted through aligned holes in a flap and cover and holding them together;

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Fig. 5 is a side view of a first version of the securing clip in the closed or locked position;

Fig. 6 is a front raised view of a first version of the securing clip;

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Fig. 7 is a side view a securing clip in an open or unlocked position;

Fig. 8 is a second version of the base of the present invention with an object to be transported on the base;

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Fig. 9 is a view of the base depicted in Fig. 8 with a cover placed on the base;

Fig. 10 is a side view along a long edge of another version of the securing mechanism;

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Fig. 11 is a side view of the securing mechanism of Fig. 10 taken along a short edge;

Fig. 12 is a perspective view of the securing mechanism of Fig. 10 in an unlocked configuration;

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Fig. 13 is a perspective view of the securing mechanism of Fig. 10 in a locked configuration;

Fig. 14 is a view of a portion of the cover and base of the present invention with a securing mechanism in the unlocked position and placed in an aperture formed by openings in the base and cover;

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Fig. 15 is a view of a portion of the cover and base of the present invention with a securing mechanism in the locked position in an aperture formed by openings in the base and cover; and

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Fig. 16 is a cross-sectional view along line 16 in Fig. 15.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The invention provides reusable product packaging that can be used to ship products, such as electrical motors, gear systems, or similar heavy or bulky objects. The package can be easily opened up and then easily re-closed and reshipped if necessary without the need to replace the packaging or spend excess time repackaging the object being shipped.

The package or shipping container of the present invention consists of a base 21 (Fig. 1), made in its preferred embodiment of a solid but flexible rigid plastic like material and a thin flexible and lightweight cover 22 (Fig. 2). The product such as a piece of equipment (not shown) would sit on top of base 21 and might be secured to it by straps or other connecting mechanism (not shown). To secure cover 22 to base 21, flaps 25, which can be pivoted up and down, are connected to the sides of cover 22 by clips or securing knobs 27 that fit in through holes 33 of cover 22 and holes 29 in flaps 25 when they are aligned. In a variation of the invention to be discussed below the securing mechanism can be permanently affixed to

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the either the base or cover to facilitate use. Cover 22 (Fig. 3) has holes 31 that mate with holes 29 of flaps 25 through which securing clip 27 fits. Fig 4 is a side profile view of one embodiment of the securing clip 27 inserted through hole 31 of cover 22 and hole 29 of flap 25 when they have been aligned. Securing clip or knob 27 holds flap 25 securely to a wall of cover 22. The whole system can be reused multiple times.

Figs. 5, 6 and 7 depict in detail one embodiment of the securing clip mentioned above. Fig. 5 provides a side cross sectional view of the securing clip holding the cover and base together. In Fig. 5 number 33 identifies the securing clip. As can be seen clip 33 holds flap 25 securely but detachably to a sidewall of cover 22. Fig. 6 is a front view of securing clip 33. To open securing clip 33 to insert it into or remove it from opening 31 of cover 22 and opening 29 of flap 25 when they are aligned, you grasp wall assembly 41A and 41B of securing clip 33 and squeeze them together. While squeezing wall assembly 41A and 41B together the wall assembly is pulled forward causing a latching mechanism at 47A and 47B to disengage. Upon pulling wall assembly 41A and 41B forward flange 51A swings down and flange 51B swing up as depicted in Fig. 7, which allows securing clip 33 to either be inserted into or removed from its position, in openings 29 and 33 holding flap 25 and the sidewall of cover 22.

When cover 22 is placed on base 21 and flaps 25 are pivoted up against cover 22 opening 29 and opening 33 are congruent and thus allow for the insertion of securing clip 33 through the congruent or aligned openings. This, naturally, securely but detachably holds cover 22 to base 21.

Fig. 8 provides an example of another preferred embodiment of the present invention in which base 61 has two rigid sidewalls 63A and 63B. Additionally, the top 65 of base 61

has a molded form 64 to accept and hold an object of a specific shape, such as motor 67. Additionally, straps 68A and 68B attach to base 61 and can be easily fastened around motor 67 to prepare it for shipping. In Fig. 8 openings 70A and 70B located respectively on rigid sidewalls 63A and 63B are oblong to accept a second type of securing device to be discussed
5 below. Fig. 9 shows the base of Fig. 8 with a cover 71 placed over the base with motor 67 secured to it. Motor 67, straps 68A and 68B, and rigid wall members 63A and 63B being depicted in a dotted line format to indicate their location under cover 71. Cover 71 also has its own openings 73A and 73B which when cover 71 is placed over base 61 are congruent with holes 70A and 70B of the base on thus form an opening or aperture. In the version
10 depicted in Fig. 9 rigid wall members 63A and 63B fit inside of cover 61. However, rigid wall member's 63A and 63B could just as easily fit on the outside of cover 61.

The carrying base of the present invention in the preferred embodiment is made out of polyurethane, polyelethalline, polypropylene or a similar plastic type of material. These are
15 all materials that can provide a strong, rugged and durable base that can withstand multiple uses. These materials can be easily molded into the appropriate shape for the intended use. Thus, when these materials are used the top of the base can be molded into a form to accept a specific object. For instance if a company manufactures or uses heavy electrical motors, gear systems or the like a special base can be made for reusable packaging to ship the product to
20 the customer and have the customer easily return it for servicing, replacement etc. The top of base can easily be configured to for use with various types of object securing devices to hold the object securely to the base during shipping. The example of an object securing mechanism shown in Fig. 8 of straps 68A and 68B is only one possibility. Clips or some other releasable locking mechanism can be used to securely hold the object to the base during
25 shipping. The base can also be made with handles or other structures to facilitate movement of the shipping package once the object to be transported is attached to the base. Base 61 has

an example of a handling device, a handle 72. The handle could be formed from the material making up the base by including it in the mold designed to make the base. Alternatively, it could be a separate structure attached in a secure fashion to the base.

5 The cover 71 in Fig. 9 and 22 of Figs. 2 and 3 in the preferred embodiment is made out of a thin flexible lightweight material. This material typically can be cardboard or plastic sheet like material. The cover can be made to in a foldable collapsible form to allow it to be folded up and stored when not in use. The cover if necessary can also be made of sheet metal if an application requires it.

10 Figs. 10 to 15 depict another version of the securing mechanism of the present invention. The version of securing mechanism 81 depicted in Fig. 10 is an oblong twist locking mechanism. In Fig. 10, a view of the long side of the twist lock mechanism 81, the two-part structure of twist lock mechanism 81 is apparent. Twist lock mechanism 81 has an
15 outer structure 83 with two facing plates 86 and 87 that are connected by shaft 88 that have sandwiched between them inner plate 89. Inner plate 89 is not attached to outer structure 83 and shaft 88 passes through a hole in the center of plate 89. Outer structure 83 has a knob 91 located on plate 86 that allows for the rotation of structure 83 without moving plate 89. Fig. 11 is view of short side of twist lock mechanism 81.

20 Figs. 12 depicts twist lock mechanism 81 in the unlocked position and Fig. 13 depicts twist lock mechanism 81 in the locked position. As can be seen in the unlocked position plate 89 is flush with the two plates 86 and 87 of structure 83. In Fig. 13 the locking position plate 89 has been rotated to a position where the long dimension of plate 89 is at
25 about 90 degrees to long dimension of structure 83 and its plates 86 and 87. By manipulating knob 91, structure 83 can be pivoted about shaft 88 (Figs. 10 and 11) to move between the

configurations shown in Figs. 12 and 13.

Figs. 14 and 15 depict actual use of twist lock mechanism 81 with base 61 and cover 71. Figs. 14 and 15 depict a portion of the side of cover 71 and base 61 from Fig. 9 where opening 70A of rigid wall member 63A and opening 73A of cover 71 are congruent and form a common aperture 101. Twist lock mechanism 81 in Fig. 14 in the unlocked position has an oblong shape, oval in the version shown, that allows it to fit into oblong aperture 101 formed by congruent openings 70A and 73A. Once twist lock mechanism has been inserted into aperture 101 knob 91 can allow for rotation of structure 83. In Fig. 15 structure 83 has been rotated and while aperture 101 holds plate 89, plate structure 83 has rotated to the locked position. As structure 83 rotates plates 86 and 87 sandwich between them a portion of the joined cover 71 and base 61 to thereby form a secure but detachable connection of cover 71 to base 61. Fig. 16 is a cross-sectional view of twist lock mechanism 81 in the locked position in Fig. 15. As can be seen plate 89 is held in place by aperture 101 and plates 86 and 87 sandwich part of cover 71 and base 61 to form the releasable closure.

In another variation of the invention the twist lock mechanism 81 can be permanently attached to the cover 71 at plate 86. Alternatively, the twist lock mechanism can be attached to the base flap 61 at plate 87. Thus, by attaching the connection and securing mechanism twist lock mechanism 81 to the cover or the base in a permanent manner facilitates use of the package system in that the connection mechanism will not be misplaced and lost and always available for use. The twist lock mechanisms can be attached permanently to either the base flaps or cover flaps in a variety of different ways and still accomplish the objectives of the present invention. In embodiment of this variation of the invention plate 89 can be permanently affixed to either the cover or the base.

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While the invention has been particularly shown and described with reference to a preferred embodiment thereof, it will be understood by those skilled in the art that various changes in form and detail may be made to it without departing from the spirit and scope of the invention.